DIVISION OF ENVIRONMENT
QUALITY MANAGEMENT PLAN

PART III:

BUREAU OF WASTE MANAGEMENT
QUALITY ASSURANCE MANAGEMENT PLAN

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APPENDIX

Appendix A: STANDARD OPERATING PROCEDURES

1.0 Quality Assurance/Control Objectives, Criteria, and Procedures

Quality assurance (QA) and quality control (QC) objectives within KDHE's solid and hazardous waste management programs are intended to ensure that all monitoring and analytical data collected by BWM staff are scientifically valid, defensible and, when practical, of known and acceptable precision and accuracy. The remainder of this document describes the procedural QA/QC criteria developed to meet these objectives.

As BWM routinely performs inspections and sampling activities as part of carrying out its mission, standard operating procedures (SOPs) associated with sampling and conducting inspections are described in Appendix A of this quality assurance management plan. Health and safety considerations are covered in a separate plan as outlined by the Division of Environment's Health and Safety Policy. The fundamental data collection activity performed by BWM is environmental sampling. The BWM SOPs in Appendix A are generally to support environmental sampling and the staff performing associated activities, therefore this quality assurance management plan focuses on environmental sampling.

A site-specific sampling plan that outlines data quality objectives and sample collection locations needs to be established for each sampling activity. The plan needs to utilize approved procedures defined in the Division of Environment Quality Management Plan, more specifically those SOPs under BWM and BER. As referenced in BWM-005, SOPs from the Bureau of Environmental Remediation (BER) are utilized by BWM staff when sampling groundwater (BER-01), surface water (BER-02), soils (BER-03), or sediments (BER-04). BER SOPs are also utilized for decontamination of sampling equipment (BER-05), collection of quality control measures for water-quality data samples (BER-12), and evaluation and validation of data (BER-11).

2.0 Sampling Site Selection Criteria

The selection of field sampling locations is based on several factors including type and purpose of sample, representativeness, prevention of sample contamination, accessibility, and safety.

When possible, map reconnaissance shall be conducted prior to arrival in the general area of the site. Field staff will, to the best of their ability and under the scope of the project, familiarize themselves with general terrain, major waterways, road networks, unique topographical features, and other manmade objects or natural features in order to select sample locations. Factors which may influence site selection include: representativeness, accessibility, relationship to known or suspected sources of pollution, relationship to other influencing contaminated locations, availability of media to sample, and potential safety hazards.

Selection criteria may also vary depending upon the type of medium being sampled. The medium could include: groundwater, surface water, wastewater, other liquids, soil, sludge, other solids, or other waste materials.

Samples of unknown materials can present the highest danger to field staff. Special care must be taken to avoid or control conditions that may become dangerous to human health and the

environment. Safety concerns at industrial sampling sites include strong acids and bases, toxic materials, toxic atmospheres, slippery floors, electrical hazards, heavy equipment, and confined spaces, to name a few. It is important that the sampler have the necessary safety equipment and safety training. The 40-hour Health and Safety Training Course and annual 8-hour refresher course, is mandatory for those personnel collecting samples at industrial sites. Staffs are not trained for and will not enter confined spaces.

3.0 Sampling Procedures and Sample Custody

All samples shall be collected according to the procedures given in SOP BWM-005, located in Appendix A. The sample collector shall log the date, time, name, and location of the sample collection. The prescribed chain-of-custody procedures found in SOP BWM-006 will be followed at all times.

4.0 Analytical Procedures

Analytical procedures used in the waste management program vary greatly due to the complexity and number of possible wastes to analyze. Samples shall be analyzed using EPA/SW-846, or alternate laboratory techniques approved by EPA and the State of Kansas. All analytical procedures shall be performed by the KDHE laboratory or a laboratory certified by KDHE. The analyst shall record the dates the analyses were performed, who performed the analyses, analytical techniques/methods used, and the results of such analyses.

Detection limits necessary for success of the project as well as the sample container, preservation, handling, and holding times, are unique for the analysis requested and must be agreed upon in advance with the analyzing laboratory according to their standard operating procedures.

5.0 Internal Procedures for Assessing Data Precision, Accuracy, Representativeness and Comparability

5.1 In-house Audits

The Bureau Quality Assurance Representative (BQAR), in conjunction with the Section Chiefs and Program/Project Managers, conducts annual audits of sample, collection, analysis, and data recording procedures. Each audit is comprised of a system audit that consists of a qualitative review of QA systems. Each Section Chief is responsible for submitting to the BQAR an annual QA report for each of their programs/projects that is subject to this QMP (See Section 1.7).

5.2 Quality Control Samples

The possibility of sample contamination during sample preparation, storage and analysis is assessed through the use of quality control samples, sometimes identified as blanks. These blanks are subjected to the same treatment as the rest of the samples collected as a result of the investigation or project. The type of blanks used, or the decision to use blanks will be made on a project specific basis by the program/project manager.

Should sample quality control problems be identified, the BQAR will perform an unscheduled system audit. If necessary, the BQAR will work with the laboratory to identify any contributing sources of contamination. The scope and magnitude of any sample contamination problem, as well as all measures implemented to resolve the problem, will be documented by the BQAR in annual QA reports to the division director (see section 3.7, below).

At the discretion of the BQAR, the bureau director, or the division director, blind reference samples, spiked with known concentrations of one or more parameters, may be submitted to the laboratory and used as a general indicator of the overall accuracy of the data reported by the laboratory.

5.3 Procedures for Addressing Staff Performance Problems

Should a member of the project staff have difficulty with a given work procedure (e.g., as determined during an internal performance audit) an effort is made by the BQAR to identify the scope and seriousness of the problem, identify any data affected by the problem, and recommend an appropriate course of corrective action. All affected data are either deleted from the file or flagged within the file, at the discretion of the BQAR. Possible corrective actions include further in-house or external training for the employee, a reassignment of work duties, or modification of the work procedure.

6.0 Data Management

Completed sample analysis reports from the laboratory are delivered by mail to the appropriate program staff, as defined on the sample submission form. Copies of the analysis reports shall be sent to the BQAR. The data are checked by the BQAR for conspicuous oversights or dubious results. Should problems be noted in the data reports, the program staff, program/project manager, or BQAR shall verify the data with the laboratory. Should problems continue, the data will not be used. Each analysis report is electronically filed at the laboratory; hard copies are filed in the appropriate BWM file.

7.0 Quality Assurance Reporting Procedures

The BQAR is responsible for informing the bureau director and division director of the QA/QC status and needs of the solid and hazardous waste management programs. The BQAR is also responsible for maintaining adequate communication with KDHE Division of Health and Environmental Laboratories (KHEL) with regard to program QA/QC concerns.

In addition to these routine communication requirements, the BQAR prepares an annual program QA/QC status report that is routed through the bureau director to the divisional QA officer. Each Section Chief and program/project manager shall also prepare reports for each of their programs that are subject to this QMP. These reports will contain the following types of information:

(a) Status of QA program plan;

(b) Description of data accuracy, precision, completeness, representativeness and comparability;
(c) Discussion of significant QA/QC problems, corrective actions, progress, needs, plans and recommendations;
(d) Results of internal and any external system or performance audits;
(e) Summary of QA/QC-related training performed since the last QA/QC status report; and
(f) Any other pertinent information specifically requested by the bureau director or the divisional QA officer.